Restoring and Conserving Riparian Habitats to Maintain Wildlife Diversity May 12, 2005

Note: The following summary of the results of this workshop reflects the collective discussion and general conclusions of the workshop participants and does not necessarily reflect the views of the Department of Fish and Game, the Wildlife Diversity Project at UC Davis, or any individual participant.

The Issue

Restoring and conserving riparian habitat are essential to conserve wildlife diversity across the state, whether in the desert, the Sierra, or the Central Valley. Perhaps no other habitat type is as demonstrably critical to California wildlife as is riparian habitat. Many studies indicate that riparian habitats are vital to the vast majority of wildlife species.

Riparian habitats have been affected by numerous activities, including, among others, development, water diversions, groundwater overdrafting, grazing, timber harvest, and farming. Though barriers exist to be addressed, there are also good opportunities to restore and conserve riparian habitat on both public and private lands. Furthermore, the remaining riparian habitats are so essential for wildlife, they warrant special protection and attention.

Current Situation

At present, riparian areas are in decline in many areas of the state. This workshop focused primarily on flood management, land development, grazing and agricultural use, and water management as the principle factors affecting riparian habitats and wildlife.

Flood Management

In 1907, the *Report of California Debris Commission with Regard to Affording Relief from Floods in the Sacramento Valley and the Adjacent San Joaquin Valley* proposed a comprehensive plan for river rehabilitation, development, and flood control. The final plan, known as the Jackson Report, established the original Sacramento River flood control design, which has set a standard for riparian management in other parts of the state. Its design did not account for the benefits of riparian systems or other ecological functions. Key standards of the Jackson Report include:

- Keeping the river clear of vegetation.
- Minimizing land take, which means maintaining narrow riparian areas.
- Minimizing construction costs.

- Ensuring scour of mining debris. (**Riprap** and levees in the original design have been successful in producing scour but are now encouraging an undesired degree of in-channel erosion.)

In the 1950s, operations and maintenance manuals formalized maintenance practices based on the Jackson Report. These practices typically have negative consequences for riparian habitats. In the 1970s, the Clean Water Act (CWA) and Endangered Species Act (ESA) were enacted but did not result in update of operations and maintenance manuals.The Jackson Report standards and current practices often are in diametric opposition to the complex and conflicting permit requirements of the CWA, ESA, and other conservation laws.

Complicating the current situation are multiple agencies having pieces of authority over riparian areas and floodplains, conflicting missions within and among agencies, and management practices created before present knowledge of conservation values and science was available. Currently, all the liability for compliance with conservation legislation rests with the agencies responsible for flood-control maintenance.

Conflicting missions within and among public resource agencies are common. Large dams are managed for multiple purposes, not just flood control, affecting river flow patterns and timing, and flood-control constraints may limit restoration options. The demands on the water conveyance system levees and canals increase erosion and place stress on the flood control infrastructure.

Where fish weirs are installed at water diversions, large woody debris, usually important for aquatic ecosystems, can pile up and create a flood-flow barrier. Inadequate and disparate funding sources are not conducive to effective integration of flood management and habitat restoration. There is no centralized forum to resolve proactively the fundamental policy issues of floodplain management and habitat restoration. Flood control and restoration are both trying to occur inside the levees, creating areas of conflict.

Management practices in the floodway are based on weak science and outdated rules. Standards and practices are derived from the single focus of the Jackson Report. But neither the mandate of public safety or stewardship of natural resources is met.

Development Issues

Land development presents a host of challenges for riparian habitats and wildlife. In residential development, inadequate setbacks and protection of streams and riparian areas are common, and waterways are often constricted, altering river flow patterns and reshaping waterways. Moreover, without adequate water, new development can lead to excessive demands on surface and groundwater sources. Much of the consumed water in residential

developments is returned to river systems through urban runoff, stormwater drains, and sewage treatment outfalls, introducing pollution to the aquatic environment.

Land development frequently causes fragmentation of waterways, impeding their use as wildlife travel corridors. Invasive species, both exotic weeds and animals, are often introduced near developed areas, and they often thrive in disturbed habitats.

In many developed areas, on both public and private lands, stewardship of riparian areas is often neglected. Local agencies may not be informed regarding appropriate, ecologically sound management of riparian areas. Recreational uses of riparian areas can affect wildlife, disrupting their use patterns and chasing them from prime habitats.

Regional coordination of planning and regulation is uncommon at the city and county level, and cities are not consistently included in watershed programs. In rural residential developments, vegetation management for fire prevention and fire recovery has significant consequences for riparian areas.

Agricultural Land Conversion, Grazing and Agricultural Land-use Issues

California continues to lose agricultural land to other developed uses. As agricultural land disappears, its wildlife value is forever lost.

There are a number of barriers to riparian restoration in an agricultural setting. The agricultural community often has a negative perception of restoration and how it may conflict with agricultural production. Riparian restoration takes both time and money. Private landowners may have inadequate information or experience to design, budget for, and implement riparian restoration projects.

Riparian systems and riparian species are subject to a regulatory process that can deter landowners from engaging in restoration efforts. The burden of long-term management of these restored areas may be daunting. Funding opportunities are not well known among private landowners. The restoration community often has not effectively engaged private landowners.

Successful riparian restoration may have downsides for the agricultural landowner. Restored riparian areas could attract pest species. Restoring habitat that may attract endangered species is a concern for landowners, because it may lead to restrictions on their land or their neighbor's land. Outdated conservation guidelines for threatened and endangered species add to the uncertainty. In addition to the species-related effects of restoration, physical effects can influence landowners. Flood levels, seepage, and buildup of sediments can affect agriculture operations. Overall, better information needs to be provided to landowners regarding habitat restoration.

In addition to those listed above for general agriculture, several riparian issues are specific to ranchland. Riparian restoration may mean a loss of grazing areas. There is a general perception that there can't be a balance between grazing and riparian conservation. Managing grazing on riparian habitats of public lands is difficult, expensive, politically charged, and sometimes unenforceable. Restoration and changes in management of adjacent rangelands are often necessary for successful riparian management.

Water Management Issue

Water is often used in California in ways not consistent with the limits of available water. Acres of residential and commercial lawns, golf courses, and some high water-use crops (such as rice and cotton) are common in the state. The existing legal framework supports this misuse of water. The connection of groundwater to surface water is completely ignored in law. The water allocation and conveyance systems ignore ecosystem values, leading to modified flow regimes and channelization that do not support biodiversity. Instream flow protection laws are weak and almost always aimed at a single endangered species rather than riparian systems.

Making changes in agencies that have functions that affect water for riparian habitat is challenging. Incomplete knowledge of methods to manage for ecosystem benefits exists across all agencies, and agency inertia, fear of change, and existing political structure are hard to alter. Water management is presently approached from an engineering perspective, with little consideration of ecosystem needs, and agencies responsible for maintaining ecosystems are not the decision-makers.

The management of complicated water systems (such as the Sacramento–San Joaquin Delta) for a wide variety of sometimes-conflicting benefits has become enormously complex, which makes changes to benefit riparian habitat more difficult to implement.

Needs Identified

The overall discussion focused on cooperation among the many players in riparian issues: the legal and regulatory environment; funding; and science. Overall, there is so little riparian habitat left that we should be looking to preserve the remaining habitat while creating additional riparian habitat.

We don't have a statewide riparian policy, but we need one. Elements of riparian conservation should involve restoring more natural flow regimes, accommodating over-bank flooding, enlarging levee setbacks, and removing riprap where needed. The public policy need is to figure out how to develop the consensus for restoration and conservation and how to fund it. Education of local decision-makers is key. There is an opportunity to look for situations

where goals overlap; e.g., greenways, riparian, and flood control projects. Demonstration projects will be needed to promote best practices and to illustrate the benefits of more natural systems.

Create an ongoing forum of state and federal agencies and nongovernmental organizations to develop a collective vision using present-day conditions that balances conflicting interests of floodplain management.

- Create a process like Cooperative Agreements to prioritize, fund, and implement the vision that's created and to address dispute resolution.
- Use the best-available current science and law to clarify and update operations and maintenance manuals and flood management regulations.
- Update practices relating to sedimentation and erosion repairs and threatened and endangered species concerns.
- Pay more attention to urban creeks, now impacted by rapid and polluted runoff. Consider flood management and riparian conservation in development decisions.
- Develop peer-reviewed guidelines on a regional basis (e.g., Sacramento Valley).
- Include design standards for development to maintain or restore more natural stream flows.
- Investigate the economic benefits of reducing runoff at the source instead of increasing the need for flood control, by instituting practices such as establishing local groundwater recharge areas rather than channeling water out of the region.
- Integrate recreation, education, and riparian habitat in greenways, and look at the economic benefits of that integration (e.g., property values).
- Identify mechanisms to fund greenway purchase and maintenance.
- Develop incentives for action by private landowners in restoration and maintenance of riparian areas (e.g., state tax credit).
- Support Weed Management Areas with funding.

Engage grazing and agricultural land users.

- Develop competitive compensation for farm and ranchland through easements or fee title, building on existing programs (e.g., Conservation Reserve Enhancement Program).
- Streamline and consolidate permitting processes for restoration projects.
- Develop Safe Harbor Agreements that encourage landowners to manage lands in ways more beneficial for endangered species and ecosystems.

- Improve the Candidate Conservation Agreement Assurances and provide funds to farmers for preparing Safe Harbor Agreements.
- Encourage programmatic biological opinions and environmental review for large-scale restoration projects.
- Decrease the farmers' cost-share rate for USDA conservation programs.
- Increase funding to programs that include conservation easements with seasonal and use restrictions.

Modernize water management practices.

- Redesign flood control systems to allow for riparian restoration.
- Integrate engineers with conservationists.
- Publicize case studies that are working; e.g., Upper Truckee and the Hamilton City project on the Sacramento River.
- Adjudicate groundwater.
- Inventory and map riparian habitat to provide a baseline for setting goals with regard to water management.

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